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MEMORANDUM

To: Transportation Commission

From: Joel Pfundt, Transportation Manager
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Date: April 22, 2022

Subject: NE 85th St Station Area Plan Update

STAFF RECOMMENDATION

Receive a briefing on the travel time analysis and person trip mode share estimates as part of the supplementary transportation work for the NE 85th Street Station Area Plan.

BACKGROUND

With the passage of the 2019-2020 budget, City Council authorized creation of a Station Area Plan associated with the Sound Transit Bus Rapid Transit (BRT) station planned for the I-405/NE 85th Street interchange.

This budget direction was affirmed on February 19, 2019 when the City Council adopted Resolution R-5356 approving the 2019-2020 Priority Goals and City Work Program. One of the twelve City Work Plan initiatives related to developing the Station Area Plan is shown in the following excerpt from R-5356:

Continue partnerships with Sound Transit, the State Department of Transportation and King County Metro Transit to ensure that I-405 investments serve Kirkland's mobility needs and maximize the benefit of Sound Transit's NE 85th Street/I-405 Bus Rapid Transit interchange project by completing land use, zoning, and economic development plans for areas adjacent to the interchange project to further the goals of Balanced Transportation and Economic Development.

The BRT station, now funded and scheduled to be operational in 2026, will provide the Station Area with frequent high capacity transit service to regional destinations and transit connections. The intent of the Station Area Plan is to fully leverage this significant, voter-approved, regional investment in transit with a land use plan that would result in a walkable, equitable, sustainable, and complete transit-oriented neighborhood that will provide affordable housing, school capacity, park amenities, family wage jobs, and commercial and retail services.

Transportation Commission last discussed the Station Area Plan at the [March 23, 2022 Meeting](#). Staff presented a review of the adopted Preferred Plan Direction, the adoption timeline and

phasing plan for the Station Area, reviewed the proposed multimodal project refinements as part of the Supplementary Transportation Work. During the March 23 Transportation Commission meeting, staff received the following feedback:

- Support for refined NE 85th St. concept that includes protected bike lanes and wide sidewalks.
- Support for a refined intersection concept at NE 85th St. and 120th Ave NE that includes crosswalks on all legs.
- Team should continue to prioritize and/or look for opportunities to:
 - Provide wide sidewalks, especially in areas of high pedestrian activity,
 - Slow vehicle speeds with narrow travel lanes, smaller turning radii, and other traffic-calming measures,
 - Provide dedicated bicycle facilities, and avoid shared bike/ped facilities, where possible, and
 - Be thoughtful about property access and service (e.g., waste collection, deliveries) locations.

CURRENT TRANSPORTATION ANALYSIS WORK

The project team has completed additional transportation analysis to examine the travel times for transit through the Station Area and quantify the number of pedestrian and biking trips in the Station Area. The analysis is summarized below, and the full report is included as Attachment 1 to this memo.

Transit route travel times were analyzed for the existing Metro 250 and 239 routes, and the future K-Line route along the end points in the Station Area corridors illustrated in Figure 3, below. The routes were evaluated to estimate how travel times for transit vehicles might change from existing conditions to 2044 conditions with growth projected under the Preferred Plan Direction for the Station Area Plan. The analysis finds that travel times by transit are expected to increase by approximately 1 to 2 minutes for each route between the endpoints studied.

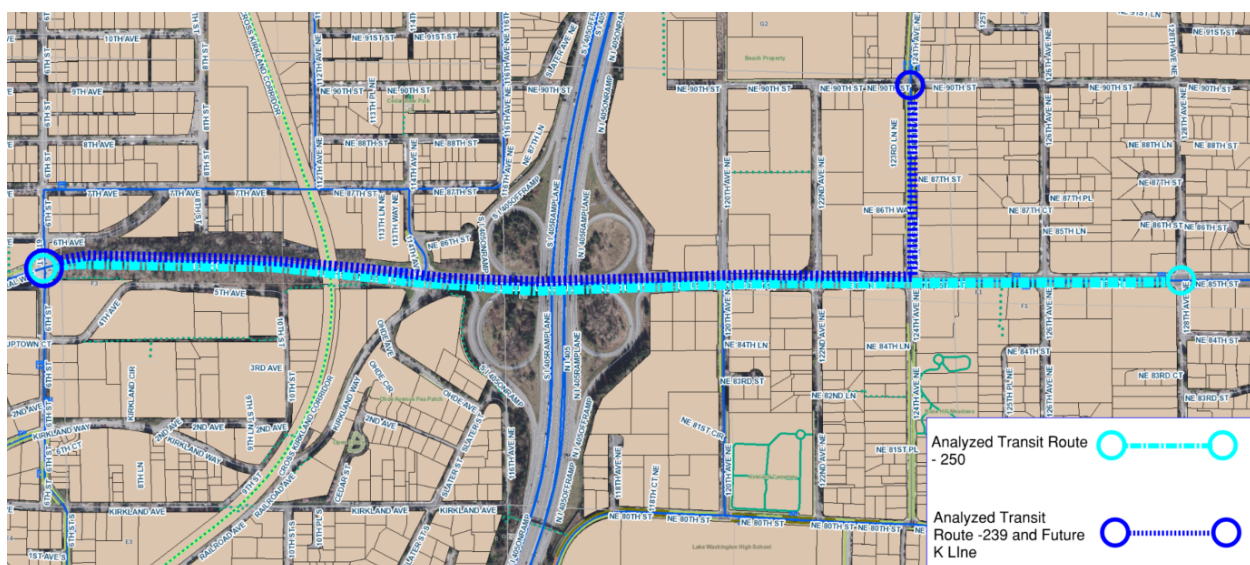


Figure 1: Analyzed transit routes.

The transit travel time analysis has a number of assumptions including:

- Travel time estimates tables are for the PM peak
- Existing travel times are based on Google Maps traffic models which prioritize 2-4 week traffic pattern history over long term historic data
- Alternative B travel time estimates are based on the increase in vehicle movement delay relative to the existing movement delay at each intersection studied under the FSEIS. This method provides a planning level analysis of corridor travel times to estimate the overall change in transit travel times based on the change in intersection delay in lieu of a full corridor study. Intersection delay and LOS was calculated using trip forecasts based on anticipated land use and density from regional (Bellevue-Kirkland-Redmond) 2035 comprehensive plan growth projections and the Station Area Preferred Alternative growth projections for 2044 and planned roadway networks.
- Alternative B travel time estimates assume the proposed intersection mitigations listed in the FSEIS and March refinement of the geometric mitigations for the NE 85th St/120th Ave NE intersection
- Existing delay from the I-405 interchange or improvements in operations from the revised interchange design was not factored into either travel time estimate.
- Transit travel time is assumed to be equivalent to vehicle travel times as transit vehicles will operate in general purpose lanes. Transit specific operations such as stop and dwell time was not included in this analysis. Transit specific mitigations such as transit signal priority or queue jumps were not included in this analysis.

The person trips analysis estimates the number of person trips and modal (e.g., single-occupant vehicle, transit, walk/bike, etc.) percentages for each quadrant of the Station Area. The analysis in Attachment 1 shows:

- The number of person trips and mode splits estimated under both June Alternative A (if growth continues under current trends without zoning changes), and with the growth projected under the Preferred Plan Direction;
- How the number person trips by mode could shift due to travel demand management (TDM) policies that encourage drivers to shift to alternative modes; and,
- Estimated percent change in person trips and changes in modal splits by quadrant assuming some reduction in single-occupancy and high-occupancy vehicle trips.

NEXT STEPS & TRANSPORTATION COMMISSION ROLE

The next phase of the process will be focused on the legislative process to adopt the Station Area Plan deliverables. This legislative work was originally scheduled to occur in 2021, with adoption projected by June 2021. That planned adoption has been extended by over a year to allow for additional due diligence, including supplemental transportation analysis, Fiscal Impacts and Community Benefits Analysis, and more community feedback.

Work in 2022 will be divided into two phases to ensure adequate time for the community and appointed/elected officials to consider important community benefits and urban design components for each phase.

- **Phase 1**, with anticipated completion in June 2022, will include:
 - Adoption of the following guiding documents for the entire Station Area (Station Area Plan, Comprehensive Plan, Planned Action Ordinance)
 - Specific rezones and Zoning Code amendments will be limited to the Commercial Mixed-Use District that is closest to the highway interchange.
- **Phase 2**, with anticipated completion later in 2022, will include:
 - Specific rezones and Zoning Code amendments for the perimeter areas. This allows more time to consider how these districts of the Station Area can be successfully integrated into neighborhoods closer to existing low-density edges of the Station Area.

Phase 1 work will include a series of joint Planning Commission and City Council meetings, a community workshop, a public hearing in early June, and Council adoption in late June. Another series of public meetings and community outreach will be held in Phase 2.

The bulk of the process to draft a Final Plan and associated Comprehensive Plan and Zoning Code amendments will occur through the Planning Commission, within the bounds of the Preferred Plan Direction established by City Council. The Transportation Commission is expected to discuss the aspects of the analysis and project concepts that relate specifically to Transportation, and indicate areas of focus and opportunities for prioritization among those to the Council.

ATTACHMENTS

1. Transit Travel Time and Person Trip Analysis Report, prepared by Fehr & Peers, dated April 20, 2022

Memorandum

Date: April 20, 2022
To: Victoria Kovacs, City of Kirkland
CC: Erin Ishizaki, Mithun
From: Jeff Pierson and Kendra Breiland, Fehr & Peers
Subject: **NE 85th St SAP – Transit Travel Time and Person Trip Analysis**

SE20-0719

This memorandum presents the results of additional analysis requested by the City of Kirkland for the Preferred Alternative for the NE 85th St Station Area Plan.

Transit Time Analysis

Transit travel times within the NE 85th St Station Area were estimated using a combination of data from Google Maps and the existing and future year intersection operations analysis results. Two different routes were evaluated to estimate how travel times for transit vehicles might change from existing conditions to 2044 conditions under the 2044 Preferred Alternative for the Station Area Plan. The two routes are:

- Along NE 85th St between 128th Ave NE and 6th St (Route 250)
- Along NE 85th St and 124th Ave NE between NE 90th St and 6th St (Route 239 and K Line)

The existing range of travel times between these origins and destinations was estimated using historical travel time data from Google Maps for a Tuesday afternoon around 5pm. **Table 1** shows the range, distance, and estimated averaged speeds for each section. These speed estimates are consistent with the data collected as part of Metro's Speed and Reliability Study for the K Line which showed speeds in this corridor ranging from less than 10mph to 20mph.



Table 1. Existing Travel Time Estimates

Transit Route	Direction	Distance	Travel Time	Average Speed
250	Westbound	1.4 miles	5 to 10 minutes	8 to 17 mph
250	Eastbound	1.4 miles	5 to 8 minutes	11 to 17 mph
239 / K Line	Westbound	1.3 miles	5 to 9 minutes	9 to 16 mph
239 / K Line	Eastbound	1.3 miles	5 to 9 minutes	9 to 16 mph

Source: Fehr & Peers.

For the 2044 Preferred Alternative, the change in travel time was calculated using the average delay per movement from the intersection Level of Service (LOS) results for the existing year and future year scenarios at the following locations:

- NE 85th St / 6th St
- NE 85th St / Kirkland Way
- NE 85th St / 120th Ave NE
- NE 85th St / 124th Ave NE
- NE 85th St / 128th Ave NE
- NE 90th St / 124th Ave NE

The additional travel time for transit vehicles through the new interchange at I-405 is assumed to be negligible since transit has dedicated right-of-way. The differences in delay for each of the movements along the transit routes were added to the existing travel time estimates in Table 1. As shown in **Table 2**, the travel times increase by approximately 1 to 2 minutes for each section.

Table 2. 2044 Alternative B (Preferred) Travel Time Estimates

Transit Route	Direction	Distance	Travel Time	Average Speed
250	Westbound	1.4	7 to 12 minutes	7 to 12 mph
250	Eastbound	1.4	6 to 9 minutes	9 to 14 mph
239 / K Line	Westbound	1.3	7 to 11 minutes	7 to 11 mph
239 / K Line	Eastbound	1.3	6 to 10 minutes	8 to 13 mph

Source: Fehr & Peers.

These estimates assume the proposed intersection mitigations at the intersections of NE 85th St / 120th Ave NE and NE 90th St / 124th Ave NE which reduce the overall vehicular delay and also accommodate transit vehicles travelling through the study area. Beyond these mitigations, no additional changes are recommended to specially accommodate transit since right-of-way along



the corridor is limited and converting general purpose travel lanes to transit-only lanes significantly increase congestion for all vehicles, including the transit.

Mode Share

The number of person trips and modal percentages for each quadrant of the study area were estimated using information from the Bellevue-Kirkland-Redmond (BKR) travel demand model and the Puget Sound Regional Council (PSRC) regional travel demand model. The initial number of PM peak hour vehicle trip generated by the project were calculated using Fehr & Peers' MainStreet tool, which incorporates built environment variables to better reflect trip generation rates in dense urban areas compared with standard rates from the ITE Trip Generation Manual. The BKR model was used to estimate the number of transit trips and the PSRC model was used to estimate the number of walk and bike trips.

Table 3 and **Table 4** on the next page show the number of person trips and mode splits for 2044 Alternatives A and B. The modal splits between the alternatives are similar with the preferred alternative showing a 1% increase in the mode shares for transit, walk, and bike trips. Overall, the number of vehicle trips (SOV and HOV) increased by 45% while other modes increased by 55% between Alternative A and Alternative B.

Table 5 shows how the number of person trips by mode could shift due to travel demand management (TDM) policies that encourage drivers to shift to alternate modes. Based on the TDM strategies identified in Fehr & Peers' October 12th, 2021 Supplemental Transportation Analysis memo, a 13% reduction in vehicle trips was determined to be reasonable based on the policies that will be implemented as part of the subarea plan. The trips are assumed to proportionally shift from SOV and HOV trips to transit, walk, and bike trips.

Table 6 shows the percent change in person trips by quadrant assuming a 13% reduction in SOV and HOV trips between Alternative B with and without the TDM policies. This translates to a 31% increase in the number of transit, walk, and bike trips. **Table 7** shows the absolute change in modal splits with SOV and HOV trips decreasing by 7% and 2% respectively and transit and walk/bike trips increasing by 4% and 6% respectively.



Table 3. 2044 Alternative A (No Action) PM Peak Hour Person Trips

Quadrant	SOV	HOV	Transit	Walk/Bike	Total
Northwest	830	230	140	240	1,440
Northeast	3,920	1,280	700	1,350	7,250
Southwest	1,650	460	390	440	2,940
Southeast	3,380	1,120	610	1,080	6,190
Total	9,780	3,090	1,840	3,110	17,820
Quadrant	SOV	HOV	Transit	Walk/Bike	Total
Northwest	57%	16%	10%	17%	100%
Northeast	54%	18%	10%	19%	100%
Southwest	56%	16%	13%	15%	100%
Southeast	55%	18%	10%	17%	100%
Total	55%	17%	10%	17%	100%

Source: Fehr & Peers.

Table 4. 2044 Alternative B (Preferred) PM Peak Hour Person Trips

Quadrant	SOV	HOV	Transit	Walk/Bike	Total
Northwest	1,140	330	200	380	2,050
Northeast	4,350	1,300	800	1,380	7,830
Southwest	2,100	590	500	570	3,760
Southeast	6,670	2,060	1,500	2,400	12,630
Total	14,260	4,280	3,000	4,730	26,270
Quadrant	SOV	HOV	Transit	Walk/Bike	Total
Northwest	56%	16%	10%	19%	100%
Northeast	56%	17%	10%	18%	100%
Southwest	56%	16%	13%	15%	100%
Southeast	53%	16%	12%	19%	100%
Total	54%	16%	11%	18%	100%

Source: Fehr & Peers.



Table 5. 2044 Alternative B (Preferred) with TDM PM Peak Hour Person Trips

Quadrant	SOV	HOV	Transit	Walk/Bike	Total
Northwest	990	290	270	510	2,060
Northeast	3,780	1,130	1,070	1,840	7,820
Southwest	1,830	510	660	760	3,760
Southeast	5,800	1,790	1,940	3,100	12,630
Total	12,400	3,720	3,940	6,210	26,270
Quadrant	SOV	HOV	Transit	Walk/Bike	Total
Northwest	48%	14%	13%	25%	100%
Northeast	48%	14%	14%	24%	100%
Southwest	49%	14%	18%	20%	100%
Southeast	46%	14%	15%	25%	100%
Total	47%	14%	15%	24%	100%

Source: Fehr & Peers.

Table 6. 2044 Alternative B (Preferred) with TDM Percent Change in Person Trips

Quadrant	SOV	HOV	Transit	Walk/Bike	Total
Northwest	-13%	-12%	35%	34%	0%
Northeast	-13%	-13%	34%	33%	0%
Southwest	-13%	-14%	32%	33%	0%
Southeast	-13%	-13%	29%	29%	0%
Total	-13%	-13%	31%	31%	0%

Source: Fehr & Peers.

Table 7. 2044 Alternative B (Preferred) with TDM Change in Mode Split

Quadrant	SOV	HOV	Transit	Walk/Bike	Total
Northwest	-8%	-2%	3%	6%	0%
Northeast	-7%	-2%	3%	6%	0%
Southwest	-7%	-2%	4%	5%	0%
Southeast	-7%	-2%	3%	6%	0%
Total	-7%	-2%	4%	6%	0%

Source: Fehr & Peers.